

Investing in Human Factors Training: Assessing the Bottom Line



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Overview



- **Benefits / Cost / Timing**
- **Example : “Icarus Airways”**
- **Finance 101**
- **Bottom Line**

Benefits vs. Costs

- **Benefits**

- **“Hard” or “Tangible”**

- Reduced Ground Damage
 - Fewer On the Job Injuries
 - Reduction of Delays & Cancellations
 - Fewer / Less Costly Fines
 - Increased Dispatch Reliability

- **“Soft” or “In-Tangible”**

- Increased Communication
 - Smoother Shift Turn Overs
 - Perception of the Flying Public
 - Increased Job Satisfaction
 - Teamwork

- **Costs**

- **Start-Up**

- Development / Research
 - Materials
 - Video
 - Computer
 - Prototype / Review
 - Personnel

- **Ongoing**

- Instructor Time
 - In-house vs. OSV
 - Student Time
 - OT vs. Straight time
 - Facility / Equipment Rental
 - Materials
 - Travel / Per diem
 - Shipping
 - Enhancements / Upgrades

Cost Factors To Consider



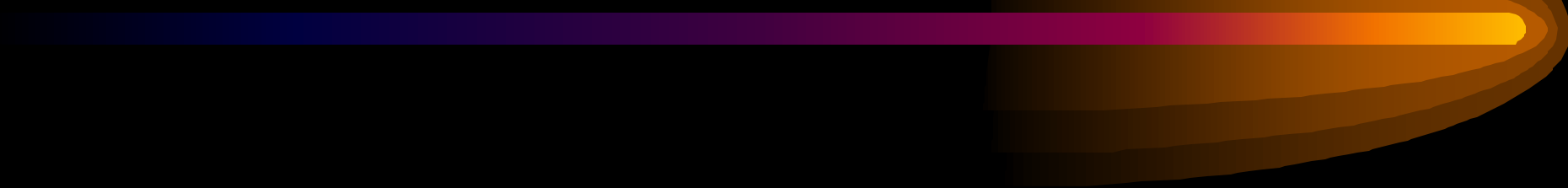
- **Who**
 - Management
 - AMTs only
- **How Many**
 - Total / Per class / classes per year
- **Length of Class**
 - 4 hour
 - 1-day
 - 2-day
- **Where**
- **Type of Classes**
 - HF Facilitator
 - MX Instructor
 - CBT / Video Based
 - Recurrent
- **Cost of OT coverage for students**
- **Company's Cost of Capital**

Tangible Benefits to Consider



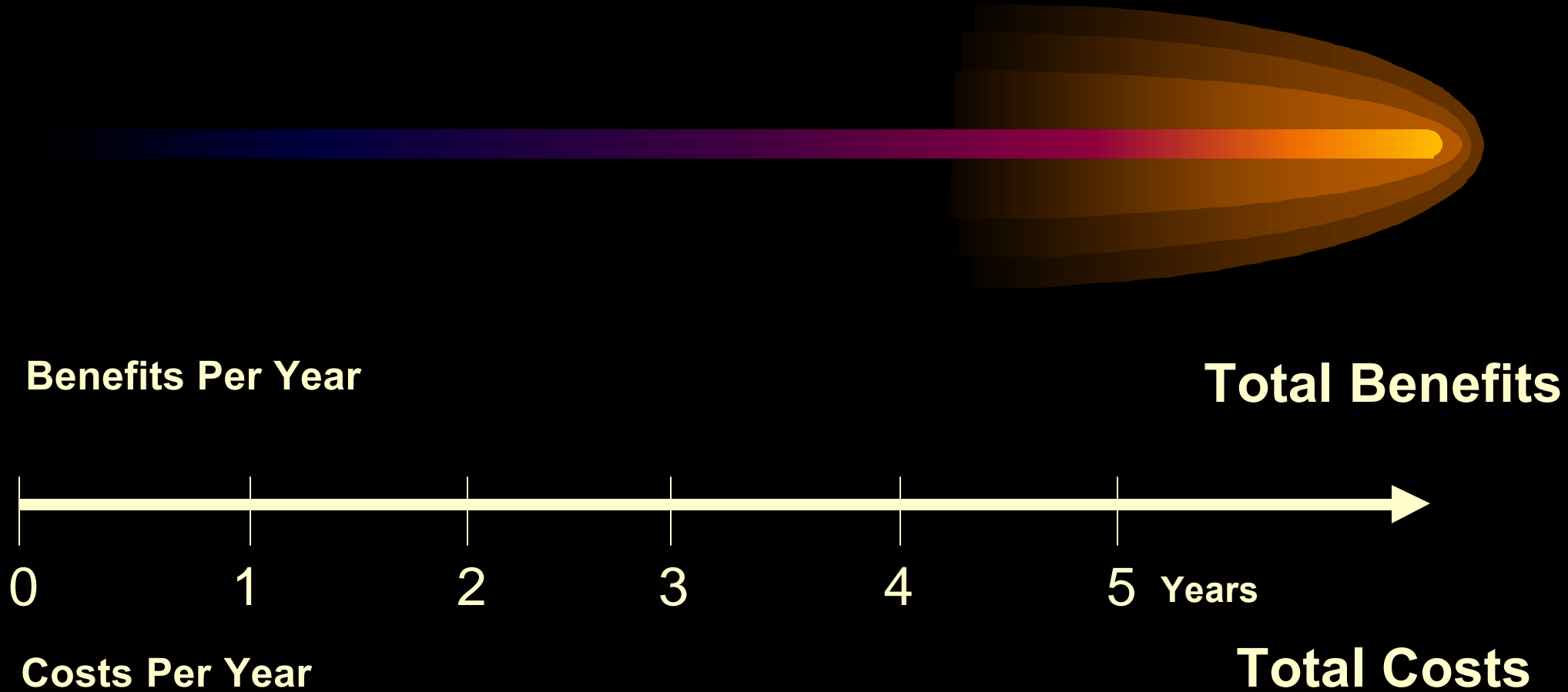
- **Safety**
 - Ground Damage
 - On the Job Injuries
- **Dependability**
 - On-Time Departures
 - On-Time Maintenance
- **Efficiency**
 - Contained Overtime Costs

In-Tangible Benefits to Consider



- **Increased Communication**
- **Smoother Shift Turn Overs**
- **Perception of the Flying Public**
- **Increased Job Satisfaction**
- **Teamwork**

Timeline





“Icarus Airways”

Assumptions

- **2000 students (Management & Technicians)**
- **5 Years**
- **20 students per class**
- **Year 0 - Development Time**
- **Year 1 - 20 classes per year**
- **Year 2 - through 5 - 30 classes per year**
- **2 Major Facilities / 10 Smaller Stations**
- **1 HF Engineer / Facilitator (12 trips per year)**
- **Overtime for Graves & Second Shift (1/2 population)**

Start-Up Cost Breakdown

TYPE	FORMULA	COST
Developer		
Two Each for 1 Month	$\$4,500/\text{Mo} \times 1.3 \text{ (Benefits)} \times 2$	\$ 11,700
Materials		
Research, Equipment		\$ 2,000
Video		
Develop In-House	$\$1,000/\text{Min} \times 30 \text{ Min} = \$30,000$	
Purchase OTS	Rights to copy	\$ 7,500
Prototype / Review		
~30 Hrs X 2	$\$63.34/\text{Hr} \times 2$	\$ 3,800
Total Cost for Development		\$ 25,000

On-Going Cost Breakdown

TYPE	FORMULA	COST
Facilitator	\$33.75/Hr X 24 Hrs	\$ 810
Travel / Per diem	\$150/Day X 3 Days	\$ 450
Student OT Coverage	20 Students X \$10.88/Hr X 8 Hrs	\$ 1,740
Facility / Classroom / Equip.		\$ 200
Shipping of Materials		\$ 100
Course Changes & Upgrades		\$ 100
Measurement & Evaluation		\$ 100
	Cost Per Class	\$ 3,500

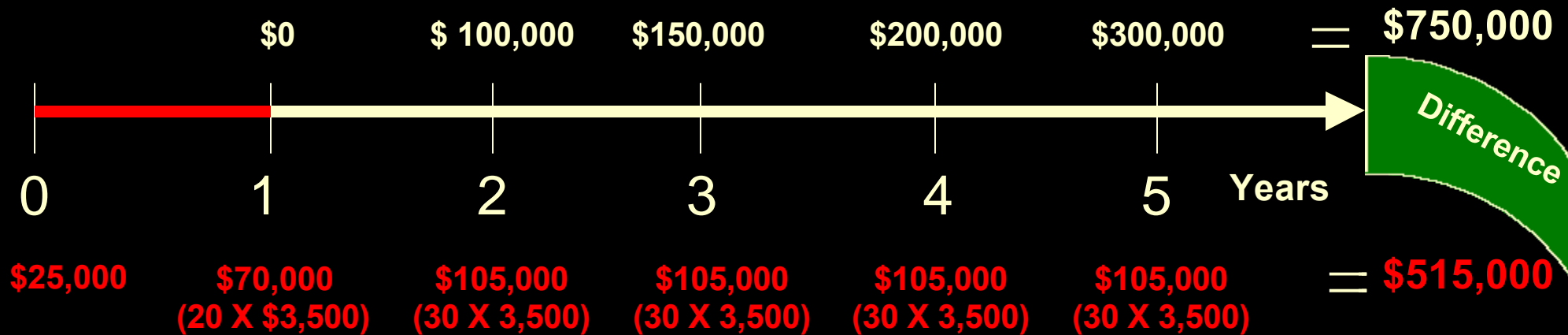
Ongoing Benefits Breakdown

TYPE	COST AT "YEAR 0"	% REDUCTION	BENEFITS @ Year 5
Tangibles			
Ground Damage	\$ 147,058	*68%	\$ 100,000
On the Job Injuries	\$ 666,666	*12%	\$ 80,000
Overtime	\$ 200,000	*10%	\$ 20,000
In-Tangibles			
Delays & Cancellations	\$\$ / Delay ? \$\$ / Cancellation?		\$ 50,000
Shift-Turnovers			\$ 25,000
Team Work			\$ 25,000
Total Benefits at Year 5			\$ 300,000



“Icarus Airways”

Benefits



Costs

Benefits vs. Costs = \$235,000!!!

“Finance 101”



- **Return On Investment**
- **Cost of Capital**
- **Time Value of Money**

(Hint: Do not proceed without a friend from Finance!)

Return on Investment



$$\text{ROI} = (\text{Benefits} - \text{Costs}) \div \text{Costs} = ? \%$$

$$\backslash (750 - 515) \div 515 = 45\% \text{ ROI}$$

Looking Good!

What's your Company's Cost of Capital?



Example :

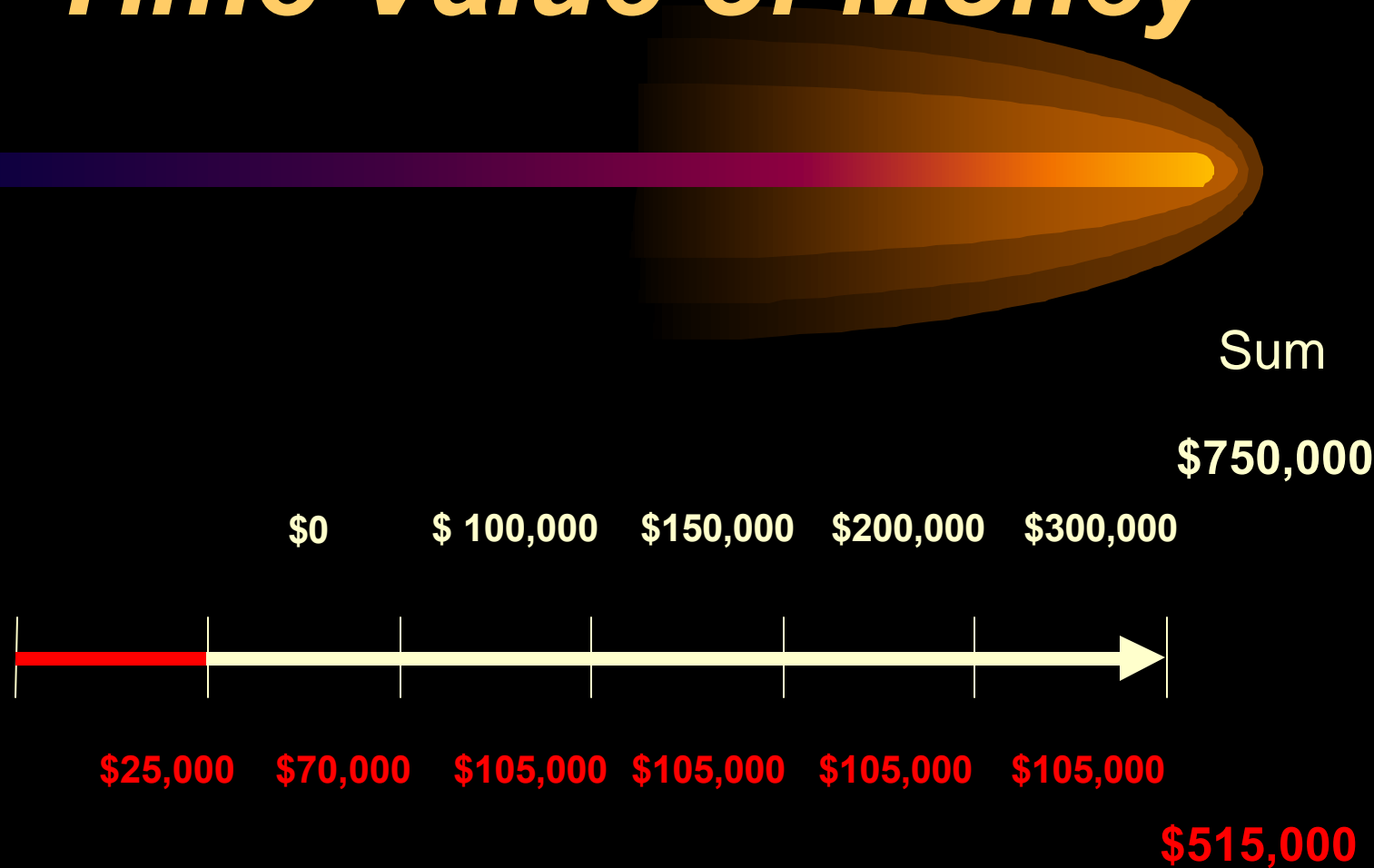
“Icarus Airways” is 12%

(MRM ROI) - (C of C) = Difference

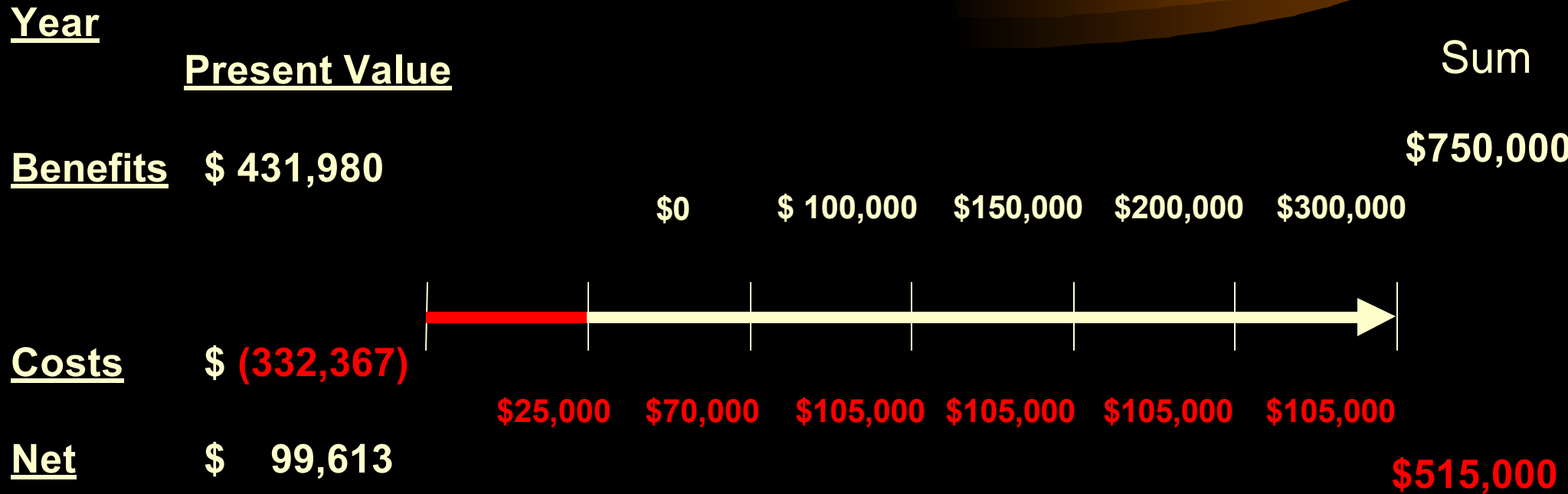
\ 45% - 12% = 33%

Still Looking Good!

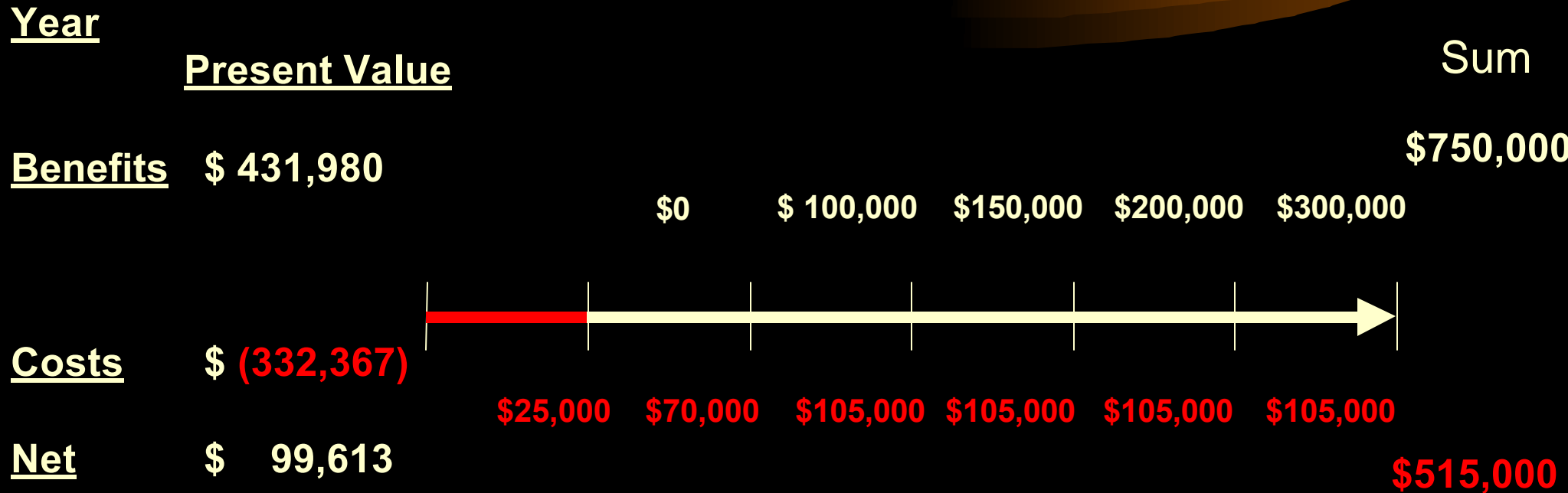
Time Value of Money



Time Value of Money

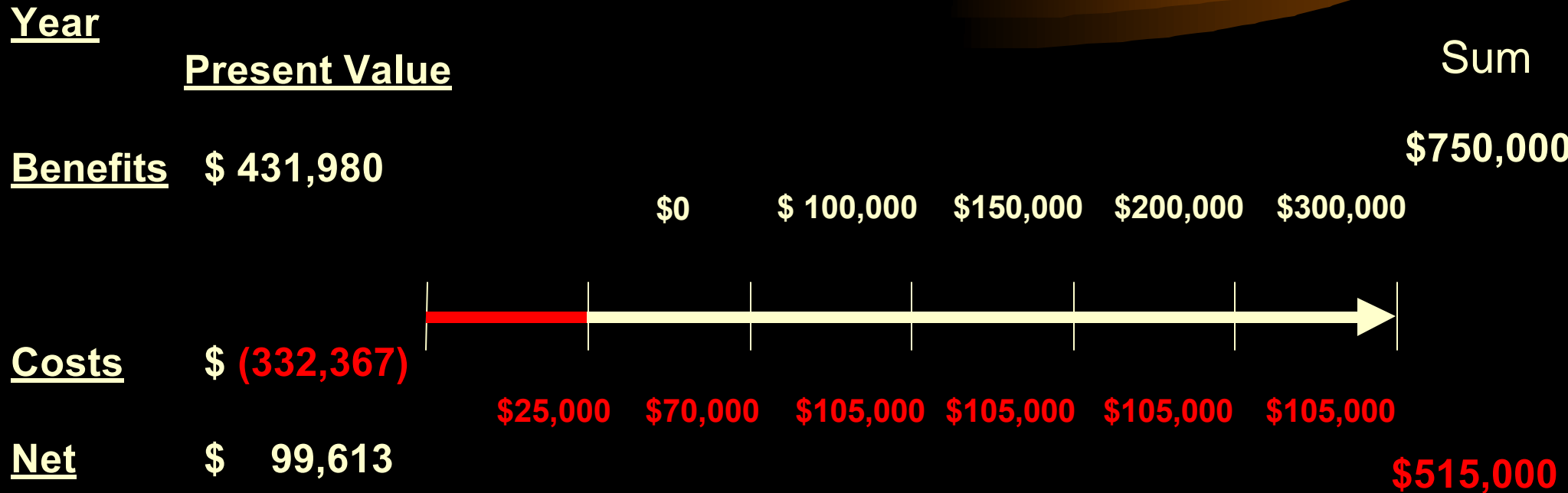


Time Value of Money



New ROI $(\$431,980 - \$332,367) \div \$431,980 = 23\%$

Time Value of Money

New ROI $(\$431,980 - \$332,367) \div \$431,980 = 23\%$


Still looks better than 12%!

If The Numbers Don't Work



- **Reduce class hours**
- **Look for other benefits**
- **Re-evaluate your costs**
- **Less aggressive schedule**
- **Go to an Outside Vendor (OSV)**
- **Use Off-the-Shelf (OTS) Program**
- **Show video followed by discussion**
- **Consider Computer Based Training (CBT)**

“Bottom Line”

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- **Talk to Finance first, not last!**
 - **Define your “True Costs”**
 - **Phase in benefits and costs over time**
 - **Be aware of the “Time Value of Money”!**



Thank You!